

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* JOHN D. MAXFIELD

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Appeal 2007-1062  
Application 10/034,438  
Technology Center 2100

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Decided: June 18, 2007

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Before KENNETH W. HAIRSTON, JOSEPH F. RUGGIERO, and  
MAHSHID D. SAADAT, *Administrative Patent Judges*.

HAIRSTON, *Administrative Patent Judge*.

DECISION ON APPEAL  
STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134 from a Final Rejection of claims 18 to 42. We have jurisdiction under 35 U.S.C. § 6(b).

Appellant has invented a database free space management method and device wherein free space within first and second sets of rows of a file object is non-uniformly distributed by distributing free space differently for a first

range of key values than for a second range of key values (Specification 8 to 10).

Claim 35 is representative of the claims on appeal, and it reads as follows:

35. A database free space management method, comprising:  
designating a first set of rows of a file object with a first range of key values;  
designating a second set of rows of the file object with a second range of key values; and  
non-uniformly distributing free space within the first and second sets of rows of the file object by distributing free space differently for the first range of key values than for the second range of key values.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Eberhard	US 6,003,022	Dec. 14, 1999
Iyer	US 6,411,964 B1	Jun. 25, 2002 (filed Dec. 23, 1998)
Pereira	US 6,584,474 B1	Jun. 24, 2003 (filed Aug. 31, 1998)

The Examiner rejected claims 18 to 34 under 35 U.S.C. § 103(a) based upon the teachings of Iyer and Pereira.

The Examiner rejected claims 35 to 42 under 35 U.S.C. § 103(a) based upon the teachings of Iyer and Eberhard.

Appellant contends that the motivation for combining the applied references lacks merit in view of the teachings of the references, and that the combined teachings of the references fail to teach or suggest non-uniformly distributing free space within the first and second sets of rows of the file

object by distributing free space differently for the first range of key values than for the second range of key values (Br. 16-18 and 21-23).

We reverse.

### ISSUE

Does the applied prior art teach or would have suggested to the skilled artisan non-uniformly distributing free space within the first and second sets of rows of a file object by distributing free space differently for the first range of key values than for the second range of key values?

### FINDINGS OF FACT

As indicated *supra*, Appellant describes a method and device for non-uniformly distributing free space within the first and second sets of rows of a file object by distributing free space differently for a first range of key values than for a second range of key values. Each of the claims on appeal recites a variation of the non-uniform distribution of free space based on different key values.

Iyer describes in-place reorganization of a database (Abstract). Iyer states that “[t]he type of reorganization distributes free space evenly” (col. 3, ll. 48 and 49). Iyer additionally states that “[o]ne type of degradation occurs when free space becomes unevenly distributed among the file pages of a table 108 space” (col. 7, ll. 12-15). The degradation problem is overcome by a reorganization that “distributes free space evenly” (col. 7, ll. 24 and 25). The reorganization of table 108 is performed in the background by reorganizer 112 (Figures 1 and 11; col. 10, ll. 3-17). Iyer is concerned with free pages as well as free space per page (col. 17, ll. 49-52).

The Examiner acknowledges that “Iyer et al. do not explicitly disclose wherein the second values differ from the first values by at least one free space management parameter value, thereby producing non-uniform distribution of free space in the database file” (Answer 5).

Pereira describes a method and apparatus for determining the condition of a database table as a condition for reorganization of that table (Abstract; col. 2, ll. 14-30). Several of the elements that determine the condition of the database table are average free space in a block unused and average free released free space (col. 2, ll. 30-34). According to Pereira, a database administrator (DBA) “makes a decision regarding the management of a row allocation within blocks of a table by setting a percentage of blocks free (PCTFREE) or percentage of blocks used (PCTUSED)” (col. 4, ll. 3- 6). The PCTFREE variable is set depending on how the database table is to be used, “so that enough space is available to allow any necessary row migration to occur within the same block” (col. 4, ll. 12-16). The PCTUSED parameter “determines whether a new row may be inserted in a block,” and it “comes into effect when used space becomes free due to deletes” from the block (col. 4, ll. 37-39).

Eberhard describes a method of estimating the costs of an application program accessing a database (Abstract). A graphical user interface is displayed in which a user can select at 211 the percent free space to be left on each page, and can specify at 212 the number of pages before a completely empty page is left (Figure 2B; col. 7, ll. 43 and 44 and col. 7, l. 65 to col. 8, l. 3). Using the Figure 2B user interface, the user can generate an expanded partial definition of a table (Figure 2C; col. 8, ll. 22-25). In the

table definition, “the number of rows in the table are specified 220, the number of pages that are filled before an empty page is left is specified 221, and the percent of free space left on a page is specified 222” (col. 8, ll. 29-32).

#### PRINCIPLE OF LAW

The Examiner bears the initial burden of presenting a prima facie case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The Examiner’s articulated reasoning in the rejection must possess a rational underpinning to support the legal conclusion of obviousness. *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006).

#### ANALYSIS

As indicated *supra*, the Examiner has acknowledged that Iyer distributes free space evenly or uniformly in a database. Iyer has also identified a problem with the use of uneven or non-uniform distribution of free space in a database. Although Pereira is concerned with free space in a block, and Eberhard is concerned with free space on a page and the number of free pages, neither reference specifies whether the free space and free pages are uniformly distributed or non-uniformly distributed. Even if we assume for the sake of argument that the free space is non-uniformly distributed, we must agree with the Appellant that the non-uniform distribution in Pereira and Eberhard is not based on “managing different key ranges of a database file with different values of free space . . . so that non-uniform distribution of free space is produced in the database file” as in claims 18 to 34 (Br. 17) or on “uniformly distributing free space within the

first and second sets of rows of the file object by distributing free space differently for the first range of key values than for the second range of key values” as in claims 35 to 42 (Br. 22). Thus, we agree with the Appellant’s argument that the applied references neither teach nor would have suggested to one of ordinary skill in the art the claimed subject matter.

#### CONCLUSION OF LAW

Obviousness has not been established by the Examiner because the applied references neither teach nor would have suggested to the skilled artisan all of the method steps and device limitations.

#### DECISION

The obviousness rejections of claims 18 to 42 are reversed.

#### REVERSED

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